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(71) Applicant (for all designated States except US): **NAU-  
TITECH PTY LTD** [AU/AU]; Unit 9/6 Anella Avenue,  
Castle Hill, NSW 2154 (AU).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **MOWBRAY**,

**Graham** [AU/AU]; Unit 9/6 Anella Avenue, Castle Hill,  
NSW 2154 (AU). **TAMBA, Ric** [AU/AU]; Unit 9/6 Anella  
Avenue, Castle Hill, NSW 2154 (AU). **TAPPER, Steve**  
[AU/AU]; Unit 9/6 Anella Avenue, Castle Hill, NSW  
2154 (AU). **DONNELLY, Paul** [AU/AU]; Unit 9/6 Anella  
Avenue, Castle Hill, NSW 2154 (AU).

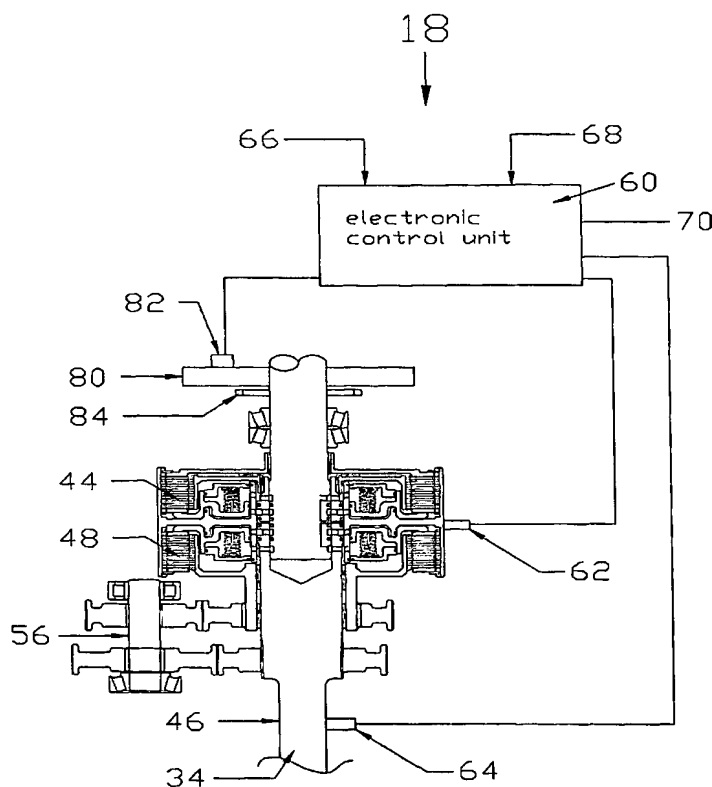
(74) Agent: **F B RICE & CO**; 605 Darling Street, Balmain,  
NSW 2041 (AU).

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(54) Title: DUAL SPEED TRANSMISSION



(57) Abstract: A two speed transmission system particularly for marine use includes a first clutch for connecting an input shaft to a co-axial output shaft, a lay shaft typically parallel to the input and output shafts, a first gear train for connecting the input shaft to the lay shaft for driving the same via the input shaft, and a second gear train connecting the lay shaft to the output shaft. The first clutch connects the input shaft to the output shaft; and a second clutch connects the input shaft to the output shaft via the lay shaft giving a gear ratio other than one to one. The gear trains are selected to provide a higher gearing i.e. faster spinning of the lay shaft when the second clutch is engaged. A control system receives inputs from various sensors including clutch pressure sensors, sensors measuring the speed of the input shaft and output shafts respectively and sensors providing information relating to the position of gears in the gear trains and controls the first and second clutches. Control valves and electro-hydraulic solenoids may be used to provide controlled clutch slip for docking and other functions where very low speeds of the order of a few knots may be desired. The control system may also be used to control the solenoid to allow slipping of the clutch when initiating movement of the watercraft to avoid the problem of "clunking" as the boat is put into, or taken out of, gear.



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